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AUTHOR	Whitmore, Joanne Rand
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ABSTRACT

This memorandum reports on the preliminary research using a 24-item inventory designed to measure teacher's positions in relation to education issues and teaching decisions. The instrument, whose development is reported, is intended to identify representatives of two dichotomous styles of teaching: traditional, teacher-centered teaching and experimental, pupil-centered teaching. Each item in the inventory consists of a pair of extreme positions on an issue, to which the subject gives one of five responses ranging from strong agreement with the first statement to strong agreement with the second statement. The items were assigned to four subscales: Controlling, Rigidity, Individualism, and Professionalism. Scales, scores on two combined scales (R+C, P+I), and total scores were computed. In addition, Teacher Attitude Inventory (TAI) scores were compared with observations of teacher behavior obtained on an observation instrument developed as part of a larger project that the TAI also served. The TAI was administered twice to primary and intermediate teachers in two school districts attended by students of different socioeconomic strata. Differences in teaching styles between the two groups of teachers, as informally observed by the experimenter, were shown by self-reports on the TAI to exist, except in relation to Professionalism. Data on reliability and validity are included, and conditions suitable for obtaining accurate self-reports are described. (Author)

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STANFORD CENTER
FOR RESEARCH AND DEVELOPMENT
IN TEACHING

Research and Development Memorandum No. 118

A TEACHER ATTITUDE INVENTORY: IDENTIFYING TEACHER POSITIONS IN RELATION TO EDUCATIONAL ISSUES AND DECISIONS

Joanne Rand Whitmore

School of Education
Stanford University
Stanford, California

June 1974

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Introductory Statement

The Center's mission is to improve teaching in American schools. Its work is carried out through five programs:

- Teaching Effectiveness
- The Environment for Teaching
- Teaching Students from Low-Income Areas
- Teaching and Linguistic Pluralism
- Exploratory and Related Studies

The instrument described in this report was developed for use in a project on effective reinforcement for achievement behaviors in minority children, a part of the Program on Teaching Effectiveness.

Preface

This paper reports preliminary research on the TAI, an inventory assessing teachers' attitudes toward controversial issues in education. It is intended to be helpful in predicting teaching practices and in evaluating changes in opinions over time. At this stage, all conclusions must be regarded as tentative. This memorandum was written to assist fellow researchers interested in contributing to the evaluation of the TAI. Other persons desiring to use the instrument are requested to contact the author (see p. 42). All use of scores from the TAI should be cautious and should show due regard for the sensitive nature of self-reports.

This publication is one of a series from a three-year project investigating the relationship between teacher behavior and student cognitive and affective achievement. Data were collected over a three-year period in a school district serving predominantly black children. Correlates of motivational variables in students and reinforcement strategies in teachers were examined in all three years. The data from each of the first and second years were used to formulate intervention programs used in the second and third years.

The following is a complete list of materials from this project published, or to be published, by the Stanford Center for Research and Development in Teaching.

Summarizing Reports

Sears, P. S., Bloch, M., Hubner, J., Gamble, J., Adenubi, M., & Crist, J. L. Effective reinforcement for achievement behaviors in disadvantaged children: The first year. (Stanford Center for Research and Development in Teaching, Technical Report No. 30), Stanford University, 1972. (ED 067 442)

Crist, J. L., Marx, R. W., Whitmore, J. R., & Sears, P. S. Effective reinforcement for achievement behaviors in minority children: The second and third years. (Stanford Center for Research and Development in Teaching, Technical Report), Stanford University, forthcoming.

Marx, R. W., & Crist, J. L. Effective reinforcement for achievement behaviors in minority children: Summary of research. (Stanford Center for Research and Development in Teaching, Research and Development Memorandum), Stanford University, forthcoming.

Specific Intervention Techniques

Beckum, L. C. The effect of counseling and reinforcement on behaviors important to the improvement of academic self-concept. (Stanford

Center for Research and Development in Teaching, Technical Report No. 38), Stanford University, 1973. (ED 081 880)

Whitmore, J. R. The modification of undesirable attitudes and classroom behavior through constructive use of social power in the school peer culture. (Stanford Center for Research and Development in Teaching, Technical Report No. 36), Stanford University, 1973. (ED 084 489)

Whitmore, J. R. Student leadership: Guidelines for developing programs in distressed low-income elementary schools. (Stanford Center for Research and Development in Teaching, Research and Development Memorandum No. 113), Stanford University, 1973. (ED 083 348)

Whitmore, J. R., Crist, J. L., & Marx, R. W. An experimental in-service teacher education program for distressed elementary schools. (Stanford Center for Research and Development in Teaching, Research and Development Memorandum No. 117), Stanford University, 1974. (ED 087 777)

Test Manuals and Summaries of Instruments

Marx, R. W., Peterson, P., & Nichols, S. Test manual: Sears Self-Concept Inventory. (Stanford Center for Research and Development in Teaching, Research and Development Memorandum), Stanford University, forthcoming.

Sears, P. S., Crist, J. L., & Marx, R. W. The teacher behavior observation schedule: An instrument for coding teachers' classroom interaction. (Stanford Center for Research and Development in Teaching, Research and Development Memorandum), Stanford University, forthcoming.

Sears, P. S., Marx, R. W., & Crist, J. L. Teacher forced ratings: An instrument for assessing children's intellectual, social, emotional, and physical development. (Stanford Center for Research and Development in Teaching, Research and Development Memorandum), Stanford University, forthcoming.

Whitmore, J. R. A teacher attitude inventory: Identifying teacher positions in relation to educational issues and decisions. (Stanford Center for Research and Development in Teaching, Research and Development Memorandum No. 118), Stanford University, 1974.

Whitmore, J. R. "Thinking About My School": The development of an inventory to measure pupil perception of the elementary school environment. (Stanford Center for Research and Development in Teaching, Research and Development Memorandum), Stanford University, forthcoming.

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A TEACHER ATTITUDE INVENTORY: IDENTIFYING TEACHER POSITIONS IN RELATION TO EDUCATIONAL ISSUES AND DECISIONS

Joanne R. Whitmore

Introduction

The Teacher Attitude Inventory (TAI) was prepared for use in an extensive research project titled Effective Reinforcement for Achievement Behaviors in Minority Children. The project included three years of research in the schools of a community whose residents were black and of low socioeconomic status (hereafter referred to as low-SES). The first year (1969-70) involved making classroom observations, analyzing teachers' needs, and developing instruments for data collection. It was during this phase that the TAI was developed.

During the subsequent two years (1970-71, 1971-72), the project provided teachers in the district with experimental programs of in-service education. The first was a year-long biweekly series of workshops on motivation that was offered to fourth-grade teachers. The second was an intensive program of in-service education designed to assist an entire school faculty in changing some of the pupils' attitudes and behavior. In both years, the major objectives of the program were to encourage teachers to break away from traditional methods and to experiment; to attend more to individual students and their socioaffective needs; and to individualize instruction in order to increase pupil success and opportunities for self-direction. It was for the general purpose of measuring changes in teachers' attitudes toward the substance of these objectives and toward the experiences of in-service education programs that this inventory was constructed.

Dr. Whitmore is now at Peabody College for Teachers. The project of which this work was a part was conducted at SCRDT. The entire project staff, especially Project Leader Pauline S. Sears, assisted the author with the development of the instrument. Ronald W. Marx contributed invaluably to its evaluation.

Development of the Inventory

The specific purposes of developing a scale to assess teachers' attitudes were: (a) to provide the research staff with self-reported information about the attitudes of the participating teachers, and (b) to measure the effectiveness of the programs provided. The areas investigated were (1) attitudes toward workshops, faculty meetings, and other opportunities for professional growth and contribution, and (2) the positions individual teachers or groups of teachers tended to take in relation to pertinent educational issues and decisions influencing teacher behavior.

The rationale behind the development of the instrument may be explained briefly as follows. Today, educational institutions are besieged by conflicting advice and expectations for the teacher in the elementary classroom. Both novice and experienced teachers find themselves exposed to conflicting views of what methods or practices will increase their effectiveness. Thus the teacher seeking professional growth and increased effectiveness must be involved in examining, selecting, and evaluating alternatives. This problem-solving process leads the teacher toward defining his or her relationship to the positions of other teachers on questions of methods. The design of the TAI was based on the assumption that a scale identifying a teacher's positions in relation to educational issues would provide an adequate measure of the attitudes or opinions that influence teaching practices.

The Theoretical Framework

The format and content of the TAI were based on the belief that teachers, as they engage in problem solving or decision making, are aware of dichotomous ideologies or educational philosophies. Although teacher behavior is not simple and individual patterns cannot easily be categorized, there is much evidence that two dichotomous styles of teaching tend to be practiced and advocated. In fact, one could say that American teachers have become polarized into clusters drawn toward either traditional "3-R" practices or innovative and experimental teaching behavior. Most teachers have been exposed to individuals representing both poles

and are aware of their views as they make professional decisions. TAI items ask the teacher to place himself or herself on a continuum between two antithetical statements regarding a fundamental question of teaching practice or professional participation. The teacher's response is expected to indicate a tendency to be influenced in decision making toward one of the two dichotomous positions.

It is recognized that there is much variation within and between individuals regarding teaching behavior over time. However, the first year of the project confirmed the existence of two contrasting basic styles of teaching (see Sears et al., 1972). A premise of this study was that ideologically teachers tend to endorse behaviors associated with one or the other of the two styles, even if the teacher's own behavior is inconsistent or includes elements of both styles. The ideology being measured represents the "should" conception evolved through the individual's experiences in professional training and classroom teaching. The two basic styles are outlined in Table 1.

Survey of the Research Literature

Prior to preparation of the TAI, the literature was searched for a suitable instrument already in existence. Most of the inventories reported were comprised of comparatively general philosophical statements or of items related to a specific training program, curriculum, or practice. More philosophical instruments included items such as: "Man is nothing til he acts" or "The essence of reality is choice." Inventories containing more specific items did not sample the wide variety of teaching practices for which assessment was desired.

Of the numerous attitude questionnaires devised for the purpose of predicting success in teaching low-income or minority children, none reviewed by the experimenter yielded evidence that the instrument achieved its objective. Frequently the items on such questionnaires reflected the pedagogy of specific training programs and items for which this investigator would expect a tendency toward particular socialized responses.

Many inventories that measured the degree to which teachers endorsed policies or procedures were designed for secondary or college level use. Although some of the forms could be adapted for elementary teachers, the

TABLE 1

Characteristics of Two Contrasting Basic Styles of Teaching

Category of Teacher Characteristics	Style One	Style Two
Primary concern expressed (Measure of success)	Control of deviants. Mastery of subject matter	Motivation, total growth of individuals--cognitive and socioaffective development, self-image and aspirations; optimal growth of individuals
Teaching emphasis	Learning content; subject matter instruction (lecture and reading primarily)	Learning Process: problem solving in a group and individually; development of skills for inquiry (minimal lecture and reading)
Belief about source of teaching effectiveness	Structure, Consistency: resulting in group achievement and well-controlled behavior	Flexibility, Ability to Individualize: resulting in individual achievement and self-fulfillment
Basic approach in teaching	Group, with the teacher at center	Individuals, with much self-direction
Perception of teacher role	Authority, Expert Controller	Resource, Catalyst, Leader or Facilitator
Attitude toward professional role	Reluctant to move away from tradition, to disturb status quo Enjoys independence; wants minimal faculty teamwork, few meetings	Seeking continual professional growth, teaching improvement; Eager to experiment; not threatened by changes; Desires participation on a faculty team with much cooperative effort and problem solving

overall content was not suitable. Likewise, many items of potential worth were found on inventories assessing teacher values, but none of the questionnaires, in toto, was sufficient for our purposes.

Further, most of the questionnaires contained many items, often 100 to 300. When teachers resent time spent completing forms or are uncomfortable with requested self-disclosure, it is important to choose concise measurement techniques. It seemed desirable to have an attitude measure as brief as possible without losing accuracy and breadth of information.

Numerous researchers have reported constructing items and scoring responses in such a way as to allow for segregating teachers into two basic groups. Many different labels were chosen to represent the two types, but invariably the detailed descriptions were directly related to the two styles or positions proposed in this study: (1) traditional teacher-centered methodology, designated as Style One, and (2) progressive, pupil-centered approaches and experimentation, designated as Style Two.

The scales developed by Kerlinger and Kaya (1959) and Kreitlos and Dreier (1955) are suggestive of the type desired, but the items tend to be philosophical statements rather than practical decisions or explicit teaching behaviors. It was considered important that items be clearly related to specific teaching behavior or practices and that ambiguous or connotative wording be avoided.

The research instrument that approximated the type sought was Dimensions of Teacher Beliefs About the Teaching Process (Wehling & Charters, 1969). The original inventory contained 118 items, later reduced after factor analysis to 86. The format is the Likert-type 6-point scale. The eight dimensions identified by factor analysis were related to the basic distinction between pupil-orientation and teacher-orientation in teaching practices. Many of the items on this instrument are similar to those finally included in the TAI. Wehling and Charters included no items pertaining to professionalism, however.

Construction of the TAI

After surveying the literature, the decision was made to construct an inventory of no more than 40 items clearly based on the theoretical

framework described earlier and including the dimension of interest in professional growth. The latter dimension had not been found elsewhere. It was decided also that an inventory especially for elementary teachers was needed and that the items should be meaningful to teachers in any locale, grade, or type of school. Therefore, even though the teacher sample for this project was from low-SES black schools, the instrument was intended to be a valuable source of information about teacher attitudes in any district or community.

In preparation for item construction, statements believed to reflect basic attitudes that would influence either classroom decisions and practices or interest in opportunities for professional growth were compiled. Each statement was judged by the research staff to represent one of the two major styles. Opposite statements, reflecting contrasting views on issues, were paired to formulate items.

The teacher places a mark on a 5-point Likert scale to express the tendency to agree or disagree with one of the statements in each pair. It is assumed that the statements are dichotomous, i.e., agreement with one presupposes disagreement with the other. A 5-point scale was used to allow individuals to indicate a position of uncertainty or of equivalent acceptance or rejection. A neutral response was considered to be important information.

From the original collection of statements, 40 pairs judged to be most informative and clear in meaning were selected and assigned to four subscales. Those subscales were: Controlling versus Releasing, Rigidity versus Flexibility, Individualism versus Group-orientation, and interest versus disinterest in Professionalism (opportunities for growth and contribution). These subscales were conceived as continuums with dichotomous ends. A scale score then would indicate a teacher's tendency toward one end of that subscale, e.g., tendency to individualize as opposed to tendency to work with large groups.

The Total score would place the individual teacher on the continuum between the two contrasting styles. Higher scores would report preference for more pupil-centered, individualized, flexible, and innovative teaching behavior, and probably greater interest in opportunities for

professional growth and contribution. Lower scores would suggest a tendency to prefer teaching behavior that is more teacher-centered (Controlling), large group-oriented, and bound to traditional methods and content, and to favor strong administration and minimal teacher participation in professional activities.

Administration and Scoring

Administration

Because of the pressures for accountability and evaluation of teacher competency, an attitude inventory may frighten insecure teachers. In most schools, at least a few individuals will be uncomfortable with the questionnaire, fearing to be judged by supervisory administrators for giving "wrong" responses, which might influence the evaluation of their professional competence. Therefore, even though the nature of the inventory is explained and clear directions are provided on the cover page of the TAI, it is advised that extreme care be taken to establish an open, trusting, nonjudgmental climate for "testing." The accuracy or honesty of the teachers' responses will depend upon the adequacy of the climate established. If the school district administrators or the school principal have strongly advocated one of the two styles, there probably will be more socialized responses. This source of bias can be reduced by using only group membership for identification. The information about a faculty as a whole or about subgroups in a district (e.g., intermediate teachers) can be very useful.

The ability of an administrator to obtain honest responses when asking for teacher identification by name depends on the extent to which he or she has established a truly open, nonthreatening climate of communication. If differences in teaching style are accepted in the school or district, teachers may feel free to identify honestly with either set of practices, and the resulting information may be highly useful to administrators placing or grouping teachers.

The following specific procedures are recommended for the administration of the TAI:

1. Discuss with the teachers as a group the purpose of asking them to complete the questionnaire. Make it clear that TAI is not a test but a means of gathering opinions on controversial issues and a means of helping teachers individually to clarify--privately--their positions on the questions.

Discuss confidentiality in accordance with the needs of the situation. Teachers should feel confident that their self-reports will not be disclosed to anyone unless with their permission. If someone from the district administration is giving the questionnaire, teachers should be told who will see the results--the principal? the superintendent? the board of education? fellow teachers?--and should be given the option of refusing to participate. Likewise, if a principal is administering the TAI and requesting identification, teachers should decide whether they want to make their opinions known to each other or just to the principal. The examiner may wish to offer to hold faculty discussions of some of the items at a later time.

2. Distribute the inventory and ask the teachers to read the first page. Discuss the idea of a continuum between two contrasting approaches, neither of which is necessarily always best. Stress that the response desired is the one that describes where each person, as an individual teacher, most often would stand in relation to the two views stated.

Use the following examples on a blackboard for practice:

	1 2 3 4 5	
Children should be allowed to make many choices regarding curriculum or procedures.	___ ___ ___ ___ ___	Children are usually not very capable of making choices effectively as to work or procedures.
Heterogeneous grouping is definitely best for the child and probably for the teacher in the long run.	___ ___ ___ ___ ___	Some form of homogeneous grouping is definitely the only way a teacher can effectively teach.

Explain that the individual teacher's response should reflect her tendency to respond across differences between classes, pupils, and teaching situations. Advise that it is better not to deliberate too long about each item, but rather to answer rather impulsively.

3. If someone asks for clarification of the meaning of two positions in an item, suggest that she respond according to her best interpretation of them. Individuals should not belabor details of the statements, and the examiner should not offer interpretations. It is important that each teacher answer all items according to her understanding.

4. Teachers should be advised that individuals may vary in the amount of time desired to complete the questionnaire. Most people request 10 to 15 minutes. Those who finish early should not discuss items or converse while waiting for others to finish. Perhaps the forms can be completed at the close of a faculty meeting and teachers can be encouraged to leave when they finish.

Scoring

The TAI is short and easy to score by hand. For each item, a score of 5 is given for the response most representative of Style Two; a score of 1 indicates the position closest to Style One. On items 2, 4, 5, 7, 8, 11, 15, 16, 18, 20 and 22 the score will be identical to the TAI column number in which the mark is placed. On the remaining 13 items, reverse scoring is necessary: a mark in column 1 is a score of 5, column 2 is a score of 4, etc. There is a sample scoring sheet at the end of Appendix I. Beside each item which has to be reverse-scored, an "R" is present as a reminder.

The scoring sheet allows responses to be grouped on subscales. As each item is scored, the value may be entered in the Score column and again the subscale column designated by an asterisk. The asterisks indicate subscale membership for each item. The sum of the Score column will be the Total score. The subscores are obtained by summing each column. If subscales are being used, one may choose not to enter values in the Score column and simply sum across the subscales to obtain the Total.

The theoretical factors used to define the subscales will be discussed in more detail in the section "Experimental Development of the Inventory." It is only necessary here to say that one may use subscores as indicators of specific attitudes toward flexibility and experimentation (Rigidity), toward discipline (Controlling), toward professional growth (Professionalism), and toward personal, more individualized instruction (Individualism). The validity of these subscales is uncertain at this stage of

research. Their value may vary from school to school, as well as according to the purpose of the research. It seems that the Total scores are of greatest value in most circumstances.

Interpretation and Use of Scores

The interpretation of the TAI is subject to the same limitations imposed upon any self-report attitude measure. Further limitations exist owing to the lack of extensive field testing and normative data. But even after more elaborate analyses have been completed and norms established, this type of instrument will require extreme caution by interpreters of results.

It will always be a serious responsibility of the tester to consider carefully the potential bias in the scores of individuals within a group. An especially common source of bias may be the previously mentioned external pressures within a school to subscribe to a particular philosophy of teaching. Other sources of bias include recent events in the school or district which might encourage exaggerated emotional states, conditions of fatigue, and lack of motivation to complete the self-report. In looking at the scores of individuals, if there is considerable discrepancy between actual classroom behavior and reported attitude (e.g., a person who teaches only in large groups strongly advocates individualization on the questionnaire), one may assume that either there is great inner conflict within that teacher on account of the discrepancy or that the self-report is invalid and probably contains socially desirable responses.

If optimal conditions of trust were created (perhaps partly by anonymity), and teachers seemed to respond willingly and honestly to the inventory, then the amount of error in the results should be minimal and the following interpretive hypotheses may be tested. (1) Teachers who have relatively higher total scores (probably over 100, out of 120 maximum)[1] are those most inclined to be flexible, to be interested in new ideas and materials, and to encourage pupil self-direction through a program of individualized instruction. Those teachers tend to perceive students more as individuals than as groups, and to believe that high quality opportunities for professional growth are desirable. To administrators, high scores might identify teachers most apt to respond to

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[1] On the revised TAI, which contains 24 items.

experimental projects, in-service education, or team teaching. (2) Teachers with notably low scores (probably under 85) are possibly least willing to experiment or participate in programs of professional growth. They tend to be more "traditional" teachers who prefer to direct their teaching to the whole group in a self-contained classroom.

The following section of this report will include statistical data used to test the hypothesized interpretations. The scores in the middle range (86-99) are most difficult to interpret for practical application. One might look at the subscores for more specific information, although there is no strong evidence indicating that it would be especially beneficial to do so. For example, it is expected that high scores on Professionalism would indicate receptivity to experimentation and professional growth experiences (e.g., workshops, faculty study groups, etc.). Or, another example, teachers who have low scores on Individualism will probably function more comfortably in self-contained classrooms and have greatest difficulty if forced to adjust to team teaching or to implement programs of individualized study. All hypothesized interpretations of scores should be tested by data from systematic observations of actual teaching behavior, supplemented by personal interviews with the teachers.

Experimental Development of the Inventory

The Samples

The subjects were drawn from two contrasting school districts within 20 miles of each other in California. The first sample of teachers were those teachers (District One) participating in the two in-service education projects described earlier. They were teaching in a low-SES black community; 75 percent of the teachers were white and 90 percent of the students were black. The projects were being conducted in the district as a service to administrators seeking to increase achievement motivation and harmony in the schools. Teaching in the district had traditionally emphasized the 3-R's, and firm discipline and control of pupils had been the principal concern of teachers. Administrators hoped to increase willingness to experiment with new methods, individualize instruction, work flexibly in teams, reduce harsh discipline, and increase each

student's motivation to learn and to behave "appropriately." Observations in these classrooms by researchers confirmed the report that teachers were often preoccupied with techniques of control and that the instructional style tended to be group-oriented and conservatively traditional in approach (textbook, and a teacher providing information). The 1970-71 sample from this district was composed of fourth-grade teachers from eight schools which, for simplicity in reporting results, have been labeled School 1. The total teaching staff of one school involved in 1971-72 has been designated School 2.

The second sample of teachers (District Two) was drawn from a middle-class community, predominantly white, which was part of a large, heterogeneous district. Three schools, located within five miles of each other, were selected. Two were traditional California school buildings with mostly self-contained classrooms (Schools 3 and 4). The faculties were considered by administrators to be very competent, moderately flexible, and open to experimentation and professional growth experiences. Teachers were frequently engaged in some form of innovative experiment in grouping or instruction.

The third school in District Two (School 5) was a new type of building--entirely round and partitioned into "pods." Teachers were present on this faculty because of their desire to teach in teams and in "stations" or learning centers almost exclusively. The principal and her faculty were recognized by fellow educators as extremely innovative and flexible. Faculty problem solving and team planning were routine. Children and teachers enjoyed a relaxed atmosphere free from "discipline problems."

The reason for selecting different types of schools in the second sample was to gain information regarding the sensitivity of the instrument. The experimenter had taught in the school district and had served as a consultant to the district for several years, becoming well informed as to the characteristics of each faculty. If the instrument were sensitive, it should discriminate between the groups. The first two middle-class schools were in buildings very similar to those in the low-income community of District One. Data from those schools compared to the first

group would help answer the question, "How do teachers in the low-SES black community differ in attitude from those in middle-class schools nearby?" Differences in teaching behavior had been observed. There was interest in determining whether related differences in attitudes would be identifiable from self-reports of teachers. School 5 was used to test whether the instrument would discriminate more finely between levels of interest in innovation and commitment to professional growth and cooperation. It was expected that this school would produce the highest scores and perhaps the lowest variance.

The number of teachers in both districts who completed the TAI in the fall was 99; the spring N was 91. Some data are missing both fall and spring from both district samples; consequently the N varies in the results reported according to the type of analysis. Complete fall and spring data were available on 64 teachers, 35 in District One and 29 in District Two. No spring data were available on the teachers in School 5 (N=24); they were unwilling to complete the inventory in May because of "too many end-of-the-year activities."

Initial Testing and Revision of the TAI

The original questionnaire used contained 40 items, 9 assigned to each of the four theoretical subscales (Rigidity, Controlling, Professionalism, and Individualism) and 4 labeled "Miscellaneous." Only the 36 items classified into subscales were used in analysis. All subjects completed the long questionnaire. Most of the data were collected in October 1970 and May 1971. Data from half of the low-SES (District One) sample were gathered in September-October 1971 and May 1972.

Initial analyses of the data included item analysis, fall-spring correlations, correlations within and between scales, and subsequent tests of significant differences between scores of groups. Suggestions regarding item construction or content were solicited from colleagues, administrators, and subjects (i.e., teachers completing the inventory). Combining the results of these research efforts, it was determined that 24 of the 36 items discriminated most between subjects and elicited responses most reliably fall to spring. Since the decision to drop 12 items was based on a relatively small sample, and since other researchers

might want to examine or test the value of the items, those that were excluded, including the 4 Miscellaneous items, have been listed in Appendix II. Statistical information on the first level of analysis will not be reported; the results presented in this memorandum will be based entirely upon the revised 24-item questionnaire (see Appendix I).

Reliability Data

Inter-item correlations. Table 2 reports the inter-item correlation matrix for fall and spring data. The sample size used in the computation ranged from 68 to 97, the variation created by missing data. In the table, asterisks indicate some pairs of items intended to require very similar choices. The letters R, C, P, and I accompanying item numbers represent the subscale to which each item was assigned. The correlations between items within each scale were expected to be higher.

Examination of the table reveals predominantly low to moderate correlations. Spring r's were placed beneath fall r's for immediate comparison. Generally, discrepancies were not large. The low correlations between "similar items" were disappointing. Tables not included here show that correlations were more substantial for District Two than for District One.

It may be that inter-item correlations, and other analytical results, contain some error resulting from the use of two statements in each item. In evaluating the results reported herein, the reader should remember that error may have occurred in the original pairing of statements assumed to be dichotomous, or in the assignment of items to subscales. In addition, post hoc evaluations suggest that teachers may have responded primarily in terms of one of the statements rather than both. The correlation to other items or to a scale may vary according to which statement generated the individual's response. Other researchers might consider testing the use of TAI contents with Likert-scale responses to each of the 48 statements contained in the 24 pairs. Administration of both forms to the same sample should be informative.

TABLE 2

Item-Item Correlation Matrix

	1-R 1	1-C 2	2-P 3	1-C 4	2-I 5	2-P 6	2-I 7	1-R 8	2-I 9	2-P 10	1-C 11	2-P 12	1-R 13	1-C 14	1-R 15	2-I 16	2-P 17	1-C 18	1-R 19	2-I 20	1-C 21	1-R 22	2-I 23	2-P 24
1 R	.19	.01	.13	.11	.12	.01	.13	-.08	.25	.17	.34	.01	-.06	.05	.42	.23	.24	.17	.04	.02	.46	.23*	.33	.21
		-.06	.23	.13	.21	.16	-.01	-.07	.31	.09	.09	.20	.20	.26	.27	.12	.17	-.01	-.04	.17	.16	.23	-.02	.01
2 C	.27		-.01	.33	.26	.16	.12	.19	.09	-.11	.20	-.04	.16	.13	.09	.19	.10	.10	.33	.22	.12	.18	-.03	.32
			.02	.27	.16	.19	.22	.16	.08	.08	.25	-.13	.26	.20	.10	.18	.08	.23	.12	-.14	.26	.26	.17	.12
3 P		.36		0.0	.08	.17	.23	.01	.25	.16	.13	-.05	.12	.08	.03	-.05	.14	-.08	.01	-.04	.27	.10	.07	-.01
				.07	.06	.25	-.01	-.15	.26	.24	.09	.05	.03	-.11	.15	.14	-.01	.20	-.12	.11	.08	.10	-.07	.13
4 C			.26		.08	-.08	.30	.30	.09	.02	.20	.16	.12	.07	.30	.28	-.01	.16	.26	-.03	.21	.34	.11	.14
					.16	.06	-.08	.14	.22	.10	.30	.25	.08	.33	.06	.08	.09	-.06	.22	.21	.20	.12	.10	.07
5 I				.30		.03	.19	.03	.23	.00	.13	.17	.14	.34	.12	.05	.12	-.05	.15	.28	.13	.25	.43*	.08
						.09	.28	.10	.19	.01	.27	.16	.24	.18	.11	-.11	.14	.06	.35	.47	.15	.07	.34	-.12
6 R					.26		.02	-.02	.25	.06	.04	.02	.02	.12	.01	-.09	.17	.10	.08	.08	.13	-.01	.07	.10
							.07	-.06	.40	.27	-.03	.08	.29	.28	.33	-.04	.13	.03	.06	.35	.32	.34	.21	.23
7 I						.38		.35	.11	.14	.28	.13	.13	.19	.13	.18	.16	-.02	.25	.14	.18	.31	.18	.11
							.38	.22	.14	-.13	.32	.12	.03	-.03	.28	.13	-.04	.06	-.02	-.00	-.19	-.02	.20	-.08
8 C								.41	.21	-.01	.37	.40*	.20	.04	.39	.14	.26	.14	.25	-.03	.01	.30	.04	.14
									.14	-.03	.38	.21	-.06	.13	.16	.27	.01	-.08	.40	.18	.41	-.01	.16	.41
9 P									.26	.28	.31	.28	.07	.14	.21	.16	.34	.14	.25	.09	.37	.31	.24	.28
										.25	.19	.33	.10	.43	.22	.12	.26	.21	.24	.26	.25	.14	.28	.23
10 P										.20	.14	.11	.01	.20	.15	.15	.14	.27	.05	.06	.35	.12	.19	.13
											-.09	-.06	.02	-.09	.21	.02	.20	.07	.03	.22	.09	.03	.13	.33
11 C											.35	.19	-.04	-.07	.29	.46	.17	.18	.17	-.05	.38	.32	.19	.30
												.15	-.04	.30	.25	.28	-.10	.12	.27	.19	.39	.04	.19	.18
12 P												.49	.19	.15	.09	-.04	.14	.11	.27	.10	.08	.18	.22	.28
													.17	.11	.13	.20	.19	-.02	.42	.10	.01	.02	.08	-.01
13 R													.58	.33	-.04	-.06	.14	.24	.18	.16	.12	.05	.16	.12
														.23	.15	.08	.35	.16	.19	.30	.22	.43	.29	-.07
14 C														.14	.10	.09	.39	.17	.31	.31	.19*	.01	.26	.21
															.30	-.09	.26	.01	.28	.40	.36	.11	.23	.15
15 R																.43	.34	.36	.32*	.16	.47	.48	.02	.32
															.27	.26	.18	.15	.17	.21	.28	.40	.13	.02
16 I																	.24	.25	.22	.12	.39	.53	.05	.29
																.39	.19	.26	.07	.16	.18	.24	.07	.16
17 P																		.28	.38	.07	.24	.24	.37	.27*
																	.12	.09	.01	.22	.06	.08	.14	.04
18 C																			.18	.04	.24	.19	.12	.30
																	.26	.02	.25	.19	.17	.10	.00
19 R																			.32	.21	.42	.13	.30
																		.31	.34	.27	.07	.29	.24
20 I																			.18	.43	.27	.28	.15
																				.10	.14	.14	.23
21 C																				.44	.46	.26	.23
																					.28	.20	.25
22 P																					.09	.15	.28
																						.28	-.05
23 I																						.30	.29
																							.07
24 P																							.18

Note: N = 68-97. The top figure in each cell is the fall correlation; the bottom figure is the spring correlation. Correlations on the diagonal are fall-spring item stability coefficients. Asterisks indicate pairs of items intended to require similar choices.

Subtests. Item-subscale correlations are reported in Table 3 for fall and spring data. The items were correlated with the four scores previously described (Rigidity, Controlling, Professionalism, and Individualism) and with combined scales R + C and P + I, as well as with the Total score. The reason for combining the scales to form two larger subscales was the hypothesis that responses to items intended to measure rigidity and tendency to be controlling would be significantly correlated. It was also expected that responses to P and I items would be highly correlated.

TABLE 3

Item-Subscale Correlations

	Fall (N = 99)							Spring (N = 81)						
Item	R	C	P	I	R+C	P+I	Tot.*	R	C	P	I	R+C	P+I	Tot.
1(R)	.46*	.35	.25	.33	.44*	.34	.44	.46*	.16	.24	.23	.34*	.28	.35
2(C)	.26	.59*	.10	.25	.48*	.21	.39	.26	.63*	.12	.27	.54*	.24	.44
3(P)	.11	.13	.49*	.17	.13	.37*	.27	.08	.09	.55*	.15	.10	.41*	.28
4(C)	.41	.64*	.08	.27	.59*	.21	.45	.22	.60*	.18	.20	.50*	.23	.41
5(I)	.23	.25	.14	.64*	.26	.47*	.40	.30	.28	.07	.65*	.33	.43*	.44
6(P)	.02	.12	.45*	.10	.08	.31*	.21	.36	.24	.57*	.31	.33	.53*	.48
7(I)	.38	.32	.26	.57*	.19	.49*	.48	.17	.08	-.05	.51*	.14	.29*	.24
8(R)	.57*	.32	.22	.24	.48*	.27	.42	.42*	.34	.12	.31	.44*	.27	.40
9(I)	.37	.34	.53	.55*	.39	.62*	.55	.33	.38	.50	.62*	.41	.68*	.61
10(P)	.14	.22	.62*	.25	.20	.49*	.37	.09	.18	.73*	.17	.16	.53*	.38
11(C)	.43	.62*	.31	.43	.59*	.43	.57	.29	.67*	.12	.41	.58*	.33	.51
12(P)	.32	.18	.48*	.25	.27	.42*	.37	.32	.11	.29*	.29	.23	.35*	.33
13(R)	.33*	.23	.18	.17	.30*	.20	.28	.60*	.25	.21	.29	.47*	.31	.44
14(C)	.20	.32*	.35	.3[illegible]	.29*	.43	.39	.38	.62*	.29	.33	.60*	.37	.55
15(R)	.69*	.48	.28	.3[illegible]	.64*	.36	.56	.68	.32	.24	.35	.55*	.36	.52
16(I)	.46	.51	.15	.51*	.53	.40*	.52	.32	.24	.23	.42*	.32	.40*	.40
17(P)	.45	.29	.50*	.40	.40	.52*	.51	.25	.13	.40*	.26	.21	.39*	.34
18(C)	.35	.46*	.31	.15	.45*	.26	.40	.13	.34*	.12	.28	.29*	.25	.30
19(R)	.63*	.41	.31	.38	.57*	.41	.54	.47*	.34	.17	.36	.46*	.32	.44
20(I)	.21	.14	.16	.45*	.19	.36*	.30	.43	.44	.34	.63*	.50	.60*	.62
21(C)	.51	.66*	.43	.44	.65*	.50	.64	.49	.69*	.24	.29	.69*	.32	.58
22(R)	.76*	.48	.28	.53	.67*	.48	.64	.68*	.27	.13	.28	.52*	.25	.44
23(I)	.23	.25	.37	.60*	.26	.57*	.45	.34	.28	.16	.66*	.36	.51*	.49
24(P)	.39	.43	.54*	.38	.45	.53*	.54	.15	.22	.60*	.12	.22	.42*	.36

*Correlations may be spuriously high due to inclusion of item in scale or smaller score in larger score.

Levels of significance, two-tailed test:

$p < .01$ df = 80, r = .28 df = 100, r = .25

Table 3 was a preliminary step in attempting to discern the value of using two scales vs. four. Asterisks indicate correlations that may be spuriously high due to inclusion of the item or subscale in the score to which the correlation was computed. Considering the spurious nature of these values, most items appeared to be almost equivalently correlated to another scale. More than 75 percent of the r's between items and the combined scales (R + C, P + I) were significant at the .01 level. Most items had comparable r's with more than one of the four subscales.

Table 4 contains the correlations between the subscales on fall and spring data. The same level of significance applies as was cited for Table 3. Again the correlations which may be spuriously high are marked by asterisks.

TABLE 4

Correlations Between Hypothesized Subscales
(Fall correlation followed by Spring)

	R		C		P		I		R+C		P+I		Total	
Rigidity		.66	.50	.44	.33	.58	.54	.90*	.83	.60	.53	.33	.77	
Controlling				.43	.30	.56	.49	.92*	.90	.58	.48	.84	.78	
Professionalism						.48	.37	.48	.36	.84*	.81	.71	.65	
Individualism								.63	.59	.88*	.84	.82	.80	
R+C										.65	.58	.92	.90	
P+I												.90	.88	

*Correlations may be spuriously high due to inclusion of smaller factor in larger score.

Examination of the preceding tables suggests that the subscales may not be measuring distinctly separate attitudes as much as a more general attitude represented by the Total score, although the subscales share between 10 percent and 35 percent of their variance. The scales of Rigidity, Controlling, and Individualism are equally intercorrelated. Rigidity and Controlling were hypothesized to be the most similar in item content but correlations between those two scales were no higher than between Individualism and R + C. Correlations were lowest in relation to Professionalism.

It is not at all unreasonable to find this scale less clearly related to the other three, which contain items clearly tied to classroom teaching practices. All subsequent tests indicated that the Professionalism scale was least reliable and less dependent upon attitudes and opinions about classroom teaching.

Internal consistency. There was interest in comparing the two samples to determine whether there was greater error in the self-reports of teachers in the low-SES community (see Table 5). It was expected that if external pressures upon teachers biased self-reports, or if lack of interest in such a measure increased random responses, the alpha coefficients would be lower and the variance greater in District One than in District Two. A danger in this line of reasoning, however, is assuming that the teachers in the middle-class district felt freer to be honest in their self-reports and would reflect more consistent opinions.

Table 5 indicates that responses in District One were considerably less consistent on Controlling items than responses in District Two. This is interesting since the issue of maintaining control, or exercising "good discipline," was the principal criterion for teacher evaluation in the District One, according to teachers. Problems of classroom discipline were listed by teachers as their first concern, and methods of improving student behavior were controversial topics of frequent informal discussions.

Alpha coefficients were especially low in District One for Professionalism and Individualism on the fall measure, and for Rigidity on spring reports. It may be that teachers in that district were less certain about their views regarding matters of Professionalism and Individualism in the fall. The workshop experiences during the year may have helped them develop more consistent opinions by spring. One might also speculate that the lower alpha coefficient on Rigidity in the spring reflected beginning changes in attitude resulting from intervention experiences not yet generalized and consistent.

TABLE 5

Coefficients of Internal Consistency on TAI Subscales, by District

Subscale		District One			District Two		
		Alpha	$\bar{X}$	S.D.	Alpha	$\bar{X}$	S.D.
Rigidity	Fall	.59	23.84	3.66	.60	25.75	2.62
	Spr.	.47	24.29	3.36	.68	25.19	2.21
Controlling	Fall	.35	21.45	3.40	.59	24.17	3.33
	Spr.	.55	23.00	3.81	.70	24.39	2.92
Professional.	Fall	-.08	24.92	2.39	.43	25.13	2.82
	Spr.	.46	25.28	3.24	.50	24.17	2.62
Individual.	Fall	.45	22.76	3.44	.64	24.23	3.19
	Spr.	.58	23.17	3.68	.59	23.84	2.76
R + C	Fall	.69	45.29	6.35	.75	49.92	5.43
	Spr.	.65	47.30	6.03	.80	49.58	4.61
P + I	Fall	.47	47.68	4.85	.72	49.36	5.34
	Spr.	.67	48.44	5.89	.62	48.01	4.28
Total	Fall	.76	92.97	10.26	.84	99.28	9.73
	Spr.	.80	95.74	11.02	.82	97.59	7.94

Note: For District One, N=37 fall and 40 spring. For District Two, N=54 fall, 37 spring.

Looking at the two combined scales, the District One alpha for P + I was notably lower on fall data and the R + C alpha was markedly lower on spring scores than for District Two. However, alphas for the Total scores were not significantly different for the two groups either fall or spring; in all cases, they indicated adequate reliability. Responses on the TAI seem to be sufficiently reliable to provide meaningful information on either teacher sample.

Fall-Spring stability. Coefficients indicating the stability of responses over the period of a school year, October to May, are reported in Table 6. These two times were selected for the purpose of assessing changes that might have been related to the research project interventions. Correlations for subscales and the Total scores were calculated for all 64 subjects in both districts for whom data were complete. They were then calculated separately for the two schools in the middle-class district not participating in any experimental projects.

Fall-spring coefficients for all subjects were low, though significant. Coefficients were much larger for District Two teachers (see Table 6), suggesting that attitudes toward Controlling and Rigidity, in particular, remained quite similar fall to spring, and Total scores were moderately stable. Views regarding Individualism and, especially, Professionalism appear to be less similar from fall to spring. Thus, this study suggested, at least in middle-class schools, without intervening projects directed toward change, that the self-reported attitudes of teachers are moderately stable over a year's time.

It should be noted that these coefficients are not considered to be good measures of test-retest stability for a number of reasons, the most important being that the emotional climate and conditions of fatigue and pressure frequently are quite different at the beginning and the end of the school year. Stability could be more effectively measured with a two-month interval, midyear (e.g., January and March).

TABLE 6

Fall-Spring Correlations for Subscales and Total Scores

	Both Districts (N = 64)	District Two (N = 29)
Rigidity	.36	.60
Controlling	.26	.66
Professionalism	.21	.30
Individualism	.29	.49
R + C	.38	.71
P + I	.25	.34
Total	.37	.66

Summary. The results of the computation of reliability coefficients indicate that this instrument, as tested to date, is moderately reliable. The Total score seems to provide the most reliable information. The value of subscales will have to be determined by more extensive field testing and analyses, as well as by practical uses of the instrument. At present it appears reasonable to assure that there is a general attitude factor that influences all responses on the inventory with moderate consistency. Responses regarding Rigidity and Control are the most reliable.

The type of teaching situation, as tested by the contrasting districts, did not appear to significantly influence the overall reliability of the instrument, but it may be that grade level does. Examination of group means suggests that primary teachers may be more stable in self-reports fall to spring than intermediate teachers. (See table in Appendix IV.) To obtain more accurate indicators of stability, the inventory should be administered about two months apart in winter.

Validation of the Instrument

Factor analyses. The items included in this inventory were intended to ascertain an individual's position on a continuum between dichotomous teaching styles. It was hypothesized that four distinct areas of opinion

would comprise a general attitude that influences teaching practices. The fall data were factor-analyzed in order to determine to what extent responses corresponded to the hypothesized four dimensions, and to obtain bases for revising the dimensions. On the basis of the reliability data, the possibility of two factors was also considered.

The inter-item correlation matrix for the pretests of all groups of teachers (N = 89) was factor analyzed by BMD X-72 (Dixon, 1972), using squared multiple correlations as commonality estimates. Two varimax rotations were performed, one rotating two factors and one rotating four factors. The findings are presented in Tables 7 and 8.

TABLE 7

Results of Orthogonal Rotation of Four Factors

	Factor Loadings			
Item	1	2	3	4
1 (R)	.49	.09	-.02	-.35
2 (C)	.00	-.35	.49	.10
3 (P)	.03	.02	.00	-.39
4 (C)	.19	-.02	.49	.18
5 (I)	-.12	-.28	.21	-.44
6 (P)	.02	-.16	-.03	-.23
7 (I)	.05	-.05	.42	-.25
8 (R)	.03	.04	.64	.04
9 (I)	.26	-.07	.23	-.47
10 (P)	.34	-.05	-.12	-.27
11 (C)	.36	.23	.48	-.26
12 (P)	-.01	-.12	.27	-.16
13 (R)	-.01	-.41	.00	-.03
14 (C)	.10	-.64	-.05	-.23
15 (R)	.71	-.09	.25	.02
16 (I)	.58	.05	.35	.02
17 (P)	.36	-.32	.14	-.31
18 (C)	.58	-.20	.00	.17
19 (R)	.20	-.53	.46	-.04
20 (I)	.05	-.51	.07	-.09
21 (C)	.65	-.04	.07	-.37
22 (R)	.48	.02	.54	-.17
23 (I)	.11	-.16	.00	-.58
24 (P)	.37	-.30	.29	-.10
Proportion of Total Variance	18%	7%	6%	4%

Cumulative Proportion = 35%

The rotated factor matrix with four factors is found in Table 7. In parentheses following the item number is a letter indicating the scale to which the item was assigned: Rigidity (R), Controlling (C), Professionalism (P), and Individualism (I).

About half of the items were clearly loaded on one factor. Frequently items were loaded highly on two factors. one positively and one negatively. Accepting the highest loading as most valid, the items can be assigned to the four factors, with 8, 4, 7, and 5 items falling in each, respectively. The rotated factors did not confirm the hypothesized scales, but similarities in content were seen. To help the reader examine the results, an abbreviated form of each item is listed for each factor.

Items Loading Highest on Factor One

1. Schools are too structured these days.....A major problem is a lack of well-defined structure
10. Faculty meetings should expose teachers to new ideas, materials and approaches.....Faculty meetings should be very brief "business"
15. There is too much experimentation in our schools.....Teachers must be willing to experiment
16. A teacher can and should make time for frequent conferences with individuals.....Individual conferences are very seldom possible
17. Teaching staffs should be more involved in the development and evaluation of their programs.....Development and evaluation are done best by the administrative staff
18. Group discussions in class are usually a waste of time.....Group discussions are useful educational techniques
21. Students should be encouraged to become increasingly involved in planning and evaluating.....Students may be involved only to a very limited extent
24. Teachers should help each other evaluate approaches, identify problems or weaknesses, and design methods of correcting the problems.....Evaluation should be a personal matter, involving only the teacher and principal

The items on Factor One seem to have a common element of closedness and rigidity. This cluster accounted for 18 percent of the total variance, and appeared to be the most clear and influential factor.

Items Loading Highest on Factor Two
(all negative loadings)

13. A teacher can significantly influence the attitudes and values of children, even from a "culturally deprived" environment.....A teacher can do very little to motivate children from a "culturally deprived" environment

14. Most children in the grade I teach are capable of increasing responsibility for self-direction.....Self-direction cannot be expected before secondary level

19. A teacher should employ any approach or technique that will contribute to the development of the individual.....A teacher is most effective when confining methods to standard ones

20. Teachers are not intended to be psychologists and should confine their efforts to subject matter.....Teachers must apply social psychology and child development theories to provide for the learning and socioemotional needs of each child

The items in Factor Two, which add 7 percent to the total variance explained, do not seem to be related by an evident common denominator. This factor may be a rather complex philosophical view of individuals or children--a view that influences expectations, respect for individuals, and concern for their total selfhood. However, one would expect other items to have loaded on this factor also. Number 19 loaded substantially on Factor Three also, and seems to belong in that group. The remaining three items are not sufficient to be of practical value.

Items Loading Highest on Factor Three

2. Most of my energy is spent trying to retain control and order..... Most of my energy is spent trying to find ways to make curriculum meaningful

4. The teacher's prime responsibility to the child is to teach him how to fit into his society and meet its expectations.....The teacher's prime responsibility is to help release the child to develop himself as an individual, relatively independent

7. Some children cannot be motivated because of other environmental influences.....There is no child who cannot be motivated to learn

8. The teaching style and curriculum should be consistent within a school.....Every teacher should be free to modify the curriculum or implement any method that helps her accomplish district or national objectives

11. Children cannot learn well in a noisy room full of movement..... Children should be allowed to talk and leave their seats to accomplish work

12. A teacher should be free to test any idea or new technique in teaching.....Experimentation should occur only under the close supervision of administration staff

22. Too much flexibility and pupil planning in a classroom creates feelings of insecurity and confusion.....Flexibility and spontaneity are vital to foster creativity and enthusiasm

The seven items in Factor Three may share in common an attitude toward conformity or the status quo. This could be very similar to the original concept of Controlling. Two items also have high loadings on Factor One.

Items Loading Highest on Factor Four
(all negative loadings)

3. Teachers need many opportunities to increase their skills and knowledge by participating in workshops.....In-service workshops are not necessary

5. Teachers should not become too personally and emotionally involved with individuals.....A teacher must be a special close friend before he can help the student realize his fullest potential

6. Teachers should be acknowledged for being innovative.....No special recognition should be given for being "innovative"

9. Some form of individualized instruction is generally more effective than group instruction for my grade level.....Group instruction is still the most practical and effective method

23. It is most effective for a teacher to gain the respect of his pupils as a close personal friend.....It is important for a teacher to demand respect by maintaining proper distance

The items in Factor Four may be related to the professional image or concept of teacher role. There does not appear to be a clear theme underlying all of the statements.

The results of the rotation with four factors did not confirm the hypothesized scales theoretically constructed. The experimenter could not make sufficient sense of the four resulting factors to advocate the use of different scales with confidence. The loadings must be regarded as very moderate, with few exceptions. Furthermore, the fact that the

four factors account for only 35 percent of the total variance raises questions about possible measurement error. Certainly more comparative data are needed for further analyses before a decision about scales can be made.

After the factor rotation with four factors was completed, the possibility that two factors existed was investigated. This question was raised partly by the overlap between the four factors derived on the first analysis, and partly by the item-to-scale and intrascale correlations. The hypothesis of two factors was based on the combination of former scales (R + C and P + I) which, on the basis of theoretical similarity, might be measuring two distinct components of general teacher attitude. The loadings before and after rotation are provided in Table 8, since the results showed little evidence that the rotation was beneficial in gaining precise information.

In Table 8, the Classification column indicates the original scale (R, C, P, or I) to which each item was assigned, and on which of the two factors hypothesized (1 or 2) it was expected to be loaded. In a sense, the loading of each item on one of the two scales was predicted. The hypothesis was confirmed for 13 of the 24 items to the extent that the highest loadings for those items were on the predicted factor. This result is little better than chance, however, with two factors. Factor One contributed 18 percent to the total variance and Factor Two added 7 percent more. Although results must be considered very tentative at this stage of research, with two factors explaining only 25 percent of the total variance and the composition of the factors being somewhat ambiguous, their value is negligible and does not seem promising.

The factor analyses were completed to determine what groupings of items might be profitable as subscale scores. At this point, the findings suggest that one general factor of attitude is measured best by the inventory, and that subgroupings of items, as originally hypothesized, may be of value only pragmatically--i.e., to answer specific questions, as noted earlier. If more extensive field testing is completed, a more accurate method of factor analysis might be the Procrustes method (see Zwirner, Cronbach, Gage, & Beck, 1972, for an excellent discussion of the

use of this methodology on a similar measure). The relatively low reliabilities obtained on items in this study would severely limit the value of further analysis with the present data.

TABLE 8

Results of Orthogonal Rotation of Two Factors

		Before		After	
Item	Class	1	2	3	4
1	R-1†	.44	.01	.38	.21
2	C-1	.34	-.01	.17	.29
3	P-2†	.16	.19	.04	.25
4	C-1†	.33	-.33	.45	-.12
5	I-2†	.28	.39	.05	.48
6	P-2†	.14	.24	.00	.28
7	I-2	.37	.00	.32	-.18
8	R-1†	.34	-.30	.45	-.09
9	I-2	.50	.14	.36	.37
10	P-2	.29	.13	.18	.26
11	C-1†	.54	-.31	.62	.00
12	P-2	.24	.07	.18	.18
13	R-1	-.13	.31	.04	.33
14	C-1	.32	.56	.00	.64
15	R-1†	.64	.25	.68	-.10
16	I-2	.57	-.35	.67	-.03
17	P-2	.54	.22	.35	.46
18	C-1†	.39	.13	.40	-.08
19	R-1	.57	.15	.42	.41
20	I-2†	.26	.36	.05	.44
21	C-1†	.64	.01	.55	.32
22	R-1†	.68	.27	.72	-.10
23	I-2†	.34	.39	.10	.51
24	P-2	.54	.04	.44	.31

†Hypothesis confirmed.

Criterion validity. The value of this instrument depends on its ability to predict teacher behavior or to reveal concurrent teaching practices. The basic questions that must be asked are as follows. (1) To what extent does a score on the TAI accurately indicate the

approximation of that teacher's behavior to Style One or Two? (2) To what extent does a score in the fall on TAI predict teaching behavior in the spring? Information about teacher behavior was extracted from the extensive data collected for evaluation of the two in-service education research projects mentioned earlier in a post hoc effort to obtain preliminary answers to those two questions; the information used came from the Teacher Behavior Observation Schedule (Sears, Crist, & Marx, forthcoming), an instrument developed for the large study of which the TAI was a part. The purpose of this memorandum is primarily to stimulate interest in further collection of validation data for the TAI.

The hypothesis for testing the validity of the TAI is that teachers exhibiting those behaviors described as Style One should report significantly lower scores on the TAI than teachers behaving as described by Style Two. The hypothesis was tested at two levels--highly objective (i.e., via the TBOS) and more subjective (informal). Similar observation data were available for the two sets of teachers participating in the workshops in District One. (Eighteen of the teachers participated in biweekly workshops for the year 1970-71. Twenty-two teachers participated in a year-long in-service project during 1971-72.)

The objective data were obtained from time point sampling observations by naive observers coding six aspects of teacher behavior into mutually exclusive descriptive categories (see the outline of the TBOS in Appendix III). Combinations of categories believed to be critical in discriminating between the two theoretical styles were identified, and the frequency of each of the teacher behaviors in those categories was analyzed.

The procedure for testing the hypothesis was as follows. The experimenter attempted to divide the teachers in each year into two equal groups most closely approximating the two teaching styles. This assignment to groups was artificial in that very few teachers in District One could be considered to exemplify Style Two. However, the division was a reasonable test--perhaps more arduous than necessary to test the hypothesis because of the restricted range of teacher behaviors in the sample. The assignment of a teacher to a group was not based on limited

information about the person's teaching behavior. The experimenter had observed formally and informally in the classrooms on numerous occasions, had observed behavior during workshops, and had shared in problem solving with the teachers as a consultant. Three teachers with whom there was very limited contact were dropped from the 1970-71 sample for this analysis. The experimenter considered herself adequately knowledgeable about the classroom practices of the remaining 15 teachers.

In Tables 9-12 there is evidence that scores on the TAI may often be accurate indicators of concurrent and future behavior of individuals in the classroom. The results also show a large amount of variance within groups and a lack of consistent differences between groups. This finding may be produced by the relative homogeneity of the sample from District One and the artificiality of group assignments. The fact that differences between group means were usually in the predicted direction was encouraging.

Because of the ad hoc nature of this analysis and awareness of the limitations upon this study, extensive analyses of the relationship between self-report of teachers and their observed behavior were not pursued. Unfortunately it was not possible to obtain observations of classroom behavior from teachers in District Two. That would have made possible a more nearly adequate analysis of validity. The raw data from District One reported here are offered as encouragement to other researchers to design a more complete field test to further test TAI validity.

The self-reports from individuals were apparently accurate, since they were consistent with the experimenter's informal observations. Even those teachers who seemed to say one thing and do another (e.g., to endorse innovation and experimentation in workshop sessions but never to find it convenient to try something different) were revealed accurately through the TAI and the classroom observations. An example is S# 9 in Table 12. The experimenter was aware of the "gap" between this subject's "intellectual" or "rational" verbalizations in workshops and faculty sessions and her more emotional and irrational behavior in the classroom. The teacher was extremely distressed by the tension resulting from the acute discrepancies.

TABLE 9

Reported Attitudes and Observed Behavior, 1970-71: Style One
(Behavior is presented in percentages based on an average
of 300 observation rounds obtained in October)

Teacher	TAI Totals		Behavior		Object		Content	Direction	
	Oct	May	Control-ling	Recognition & Approval	Whole Group	Single Child	Negative Behavior	Initi-ates	Responds
*1	79	72	15.2	5.9	26.8	51.8	17.2	71.0	26.5
*2	69	82	22.1	14.7	23.2	43.9	17.7	71.5	17.7
3	97	98	11.7	17.4	7.3	68.0	11.7	51.6	40.2
4	96	102	17.9	10.0	18.9	0.3	18.9	54.2	39.9
5	78	83	20.2	7.3	17.9	69.2	19.1	58.8	31.2
6	98	97	9.1	9.9	36.4	32.4	6.6	65.2	16.5
7	83	109	18.7	14.1	41.3	47.1	16.5	65.5	19.4
8	97	98	37.8	10.2	27.1	60.1	30.8	56.4	35.8
Total			152.7	89.5	198.9	372.8	138.5	494.2	227.2
Mean	87.12	92.62	19.09	11.19	24.86	46.60	17.31	61.77	28.40

Note: Fall scores on the TAI are more useful than spring scores because the intervention experience during the school year may have produced changes in self-reported attitudes, either genuine or socialized. Examining fall TAI scores and observation data provides a crude estimate of potential concurrent validity.

*The asterisk indicates individuals whom the experimenter regarded (based on informal observations) as most representative of Teaching Style One.

TABLE 10

Reported Attitudes and Observed Behavior, 1970-71: Style Two
(Behavior is presented in percentages based on an average
of 300 observation rounds obtained in October)

Teacher	TAI Totals		Behavior		Object		Content	Direction	
	Oct	May	Controlling	Recognition & Approval	Whole Group	Single Child	Negative Behavior	Initiates	Responds
9	97	98	19.8	12.9	28.7	50.6	23.1	58.3	29.9
*10	105	116	7.3	6.8	19.8	68.8	6.8	55.6	36.0
*11	108	105	14.5	13.7	37.6	50.8	14.5	60.1	33.4
12	92	94	11.2	15.9	27.8	52.3	9.7	65.3	27.4
13	90	108	12.0	15.7	21.7	54.9	10.4	58.9	33.0
14	89	106	10.7	15.0	26.5	48.9	9.8	45.7	26.8
15	97	114	17.1	12.0	32.7	46.9	19.3	64.4	27.3
Total			92.6	92.0	194.8	373.2	72.81	408.30	213.80
Mean	96.85	105.85	13.23	13.14	27.82	53.31	10.40	58.33	30.54

Note: Fall scores on the TAI are more useful than spring scores because the intervention experience during the school year may have produced changes in self-reported attitudes, either genuine or socialized. Examining fall TAI scores and observation data provides a crude estimate of potential concurrent validity.

*The asterisk indicates individuals whom the experimenter regarded (based on informal observations) as most representative of Teaching Style Two.

TABLE 11

Reported Attitudes and Observed Behavior, 1971-72: Style One
(Behavior is presented in percentages based on an average
of 300 observation rounds obtained in October and May)

Teacher	TAI Totals		Controlling		Recognition & Approval		Single Child		Negative Behavior		Initiates		Responds	
	Sept.	May	Oct.	May	Oct.	May	Oct.	May	Oct.	May	Oct.	May	Oct.	May
1	98	97	9.1	11.3	9.9	14.5	32.4	47.7	6.6	15.0	65.2	39.5	16.5	36.8
*2	79	80	21.2	29.5	7.9	8.5	50.9	67.5	24.2	34.5	60.0	33.5	26.1	40.5
3	78	83	20.2	32.2	7.3	14.2	69.2	47.9	19.1	31.8	58.8	58.8	31.2	36.0
*4	79	73	21.3	11.8	12.5	5.3	60.1	64.8	25.1	12.3	60.1	60.7	30.1	33.6
5	91	88	13.6	19.6	11.4	12.8	57.9	66.8	12.9	20.5	57.1	56.6	22.1	33.7
6	88	101	3.3	6.7	20.0	2.7	40.0	42.9	3.3	6.8	60.0	41.7	36.7	32.3
7	98	74	24.2	28.0	11.5	17.1	64.2	71.6	24.8	29.9	66.1	59.2	29.7	35.5
8	94	96	25.2	17.7	13.8	20.0	70.7	72.0	24.6	16.9	59.9	65.3	38.3	34.2
9	105	103	17.1		12.6		68.9		16.3		59.3		37.8	
10	98	92	24.9	13.2	7.3	14.9	58.8	57.0	22.6	16.2	49.8	40.4	33.0	49.1
11	100		17.5	30.6	23.7	15.3	65.0	89.5	17.9	29.5	52.9	40.0	46.3	48.5
12		96	8.8	6.1	15.3	6.1	40.6	49.0	7.6	5.8	60.6	39.4	38.2	33.6
Total			206.4	206.7	153.2	131.4	678.70	676.7	205.00	219.2	709.80	535.1	386.00	413.8
Mean	91.63	89.09	17.2	18.79	11.26	11.94	56.55	61.51	17.08	19.92	59.15	44.59	32.16	37.61

Note: The observation data reported in Tables 11 and 12 were gathered in October 1971 and May 1972.

The results of examining May TAI scores and observation data are suggestive of potential concurrent validity. The intervention program that was conducted during the school year makes it impossible to estimate predictive validity from September TAI scores and May observation data.

Blanks indicate that data were not available.

*The asterisk indicates individuals whom the experimenter regarded (based on informal observations) as most representative of Teaching Style One.

TABLE 12

Reported Attitudes and Observed Behavior, 1971-72: Style Two
(Behavior is presented in percentages based on an average
of 300 observation rounds obtained in October and May)

Teacher	TAI Totals		Controlling		Recognition & Approval		Single Child		Negative Behavior		Initiates		Responds	
	Sept.	May	Oct.	May	Oct.	May	Oct.	May	Oct.	May	Oct.	May	Oct.	May
13	108	108	19.0		12.6		49.5		18.4		60.5		36.8	
14	82	103	15.3	11.7	15.7	27.4	44.6	70.0	10.3	8.9	67.4	50.6	26.1	43.3
*15	110	104	18.3	24.6	27.0	21.4	66.5	58.0	17.0	25.1	59.6	53.6	39.0	40.1
16	102	91	20.8	7.6	17.2	19.7	58.8	49.2	22.2	9.6	67.6	50.8	29.2	41.6
17	105	97	15.2	8.0	13.0	21.7	58.7	61.9	17.9	9.0	66.8	38.1	20.1	48.7
18	88	92	7.2	10.7	11.7	23.6	51.1	52.5	7.2	8.9	74.4	62.6	22.2	31.3
19	103	89	15.9	22.9	8.9	5.7	46.6	46.4	17.5	29.2	65.1	70.3	24.3	24.9
20	98	98	29.7	17.5	12.8	22.6	65.1	73.2	30.3	19.0	61.0	42.4	35.9	48.8
*21		107	10.6	18.1	22.4	19.6	88.9	69.7	5.6	17.7	41.1	53.5	53.9	42.9
22		96	17.8	15.2	19.4	21.0	52.0	76.3	18.4	17.5	77.6	44.6	20.9	48.0
Total			169.8	136.3	160.7	182.7	581.8	557.2	164.8	144.9	641.1	466.50	308.40	369.60
Mean	99.50	98.50	17.0	15.14	16.07	20.30	58.18	61.91	16.48	19.76	64.11	51.83	30.84	41.06

Note: The observation data reported in Tables 11 and 12 were gathered in October 1971 and May 1972.

The results of examining May TAI scores and observation data are suggestive of potential concurrent validity. The intervention program that was conducted during the school year makes it impossible to estimate predictive validity from September TAI scores and May observation data.

Blanks indicate that data were not available.

*The asterisk indicates individuals whom the experimenter regarded (based on informal observations) as most representative of Teaching Style Two.

Problems with validating the TAI. The chief difficulty encountered in trying to validate a measure of teacher attitude is the same as that faced by designers of instruments for assessing self-concept or any other personal attitude--that is, one is limited by the willingness of subjects to divulge sensitive information accurately. There is no well-defined construct or universe of criteria to assist the psychologist in evaluating a measure. To reduce our discomfort with this problem, there has been a recent emphasis on obtaining behavioral measures to validate self-reports. This is a worthwhile research route, but psychologists must be aware that it is a restricted one. Such information can help to answer the questions raised earlier regarding the accuracy with which TAI scores can predict teacher behavior. However, it is important to remember that attitude is not equivalent to behavior, even though a direct relationship between the two subject characteristics is assumed. If they were equivalent, there would be no need for the concept of "attitude." When a psychologist measures attitude, he is gaining self-reports from individuals regarding specific feelings, perceptions, or opinions. No one can validate the self-report perfectly but the respondent. The amount of "error" biasing results will include many personal factors, such as desire to please or succeed, and social learning experiences.

The TAI items are constructed around well-known issues in education that presumably influence decisions regarding teaching methods or style. It is expected that after years of training and experience, an individual has internalized an idealized concept of "the perfect teacher." This concept may be what is reported on the TAI. Actual teaching behavior may not be so ideal. Behavior may also be influenced by emotional inner conflict in the teaching role, with the result that a teacher does not successfully translate her beliefs, values, or principles of good teaching into her daily behavior in the classroom. Another teacher may achieve a high degree of congruity between his idealized concept of a good teacher and his teaching style.

In summary, validity data will always be limited, tentative, and subject to scrutiny for each individual or group whose TAI scores may be used as a basis for professional judgments. Those limitations on its meaning

must be remembered, and users of the instrument must seek additional validity data for each group or individual tested. Each administrator of the inventory must be alert to signs of social desirability in responses and to the presence of forms with predominantly noncommittal responses ("3"). Each examiner assisting with the further development of this instrument is urged to encourage respondents, too, to note sources of ambiguity in the items.

The Practical Value of the TAI for Discriminating Between Groups

Another test of instrument validation is the ability of a measure to discriminate between groups that are significantly different on a criterion variable. As was previously described, the two teacher samples were drawn from contrasting districts. Although objective data on teacher behavior were not obtained from each sample, informal observations and experiences in consultant relationships with both groups clearly suggested basically dichotomous orientations toward teaching. Teacher behavior in District One seemed to include more adult control of pupil behavior and "traditional" methodology, as described by Style One. The teachers in District Two exhibited more behaviors included in Style Two. The research hypothesis was: Teachers in District One would score significantly lower on the TAI than teachers in District Two. This hypothesis was stated for self-reports in the fall, with the hope that differences would be eliminated during the year through the in-service education experiences.

Table 13 reports the results of t tests calculated to test the significance of differences between group means, which were in the expected direction. The null hypothesis was rejected at the .01 level of significance for Total, Rigidity, and Controlling scale means. This finding indicates that the informally observed differences in behavior between the two groups of teachers did in fact exist, except in relation to Professionalism. It is important to note that any tendency toward socialized responses resulting from external pressures in District One was not sufficiently strong to obscure the significant differences between the groups, unless perhaps on the Professionalism scale.

An equally important finding was verification of the observed differences between the groups regarding disciplinary control and structure. The statistics in Table 13 support the hypothesis that teachers in District

TABLE 13

Means, Variance, and t Values (One-Tailed) on TAI Subscales, by District

Scale	Fall	District One (N = 35)	District Two (N = 51)	t Value
Rigidity	$\bar{X}_2$	23.91	25.82	2.54**
	S^2	14.90	7.18	
Controlling	$\bar{X}_2$	21.37	24.20	3.63**
	S^2	12.12	13.44	
Professionalism	$\bar{X}_2$	24.97	25.22	n.s.
	S^2	5.97	9.53	
Individualism	$\bar{X}_2$	22.77	24.22	1.84*
	S^2	12.89	12.53	
R + C	$\bar{X}_2$	45.29	50.02	3.12**
	S^2	43.74	32.90	
P + I	$\bar{X}_2$	47.74	49.43	1.44
	S^2	24.38	34.81	
Total	$\bar{X}_2$	93.03	99.45	2.78**
	S^2	110.67	110.88	

Scale	Spring	District One (N = 34)	District Two[a] (N = 36)	t Value
Rigidity	$\bar{X}_2$	24.44	25.06	n.s.
	S^2	11.47	7.94	
Controlling	$\bar{X}_2$	23.35	24.31	n.s.
	S^2	14.90	14.79	
Professionalism	$\bar{X}_2$	25.35	24.22	n.s.
	S^2	11.14	11.95	
Individualism	$\bar{X}_2$	23.29	23.67	n.s.
	S^2	14.28	12.40	
R + C	$\bar{X}_2$	47.79	49.36	n.s.
	S^2	37.02	35.72	
P + I	$\bar{X}_2$	48.65	47.89	n.s.
	S^2	37.45	31.88	
Total	$\bar{X}_2$	96.44	97.25	n.s.
	S^2	126.56	107.11	

[a]Spring data were unavailable from the third and most contrasting school in District Two.

*$p \leq .05$

**$p \leq .01$

One were less willing to release control and allow pupil self-direction, and were more inclined to adhere to rigid procedures and to direct instruction to the whole class or at least to large groups. Teachers in District Two were less concerned with controlling students and following curriculum guides and were apt to be more responsive to in-service education experiences intended to increase flexibility and innovation on the part of teachers while developing pupil self-direction.

The above comparisons between districts generated two questions. Were the greatest differences in attitude between intermediate teachers in the two districts? Was the third school in District Two (School 5) most significantly different from schools in District One?

Examination of the means and standard deviations reported in Table 14 reveals that differences were greatest by far between the intermediate teachers, as predicted. In fact, the lack of difference between means for groups of primary teachers was surprising. The means and variances were almost identical. The kindergarten and primary-grade teachers in the low-SES community seemed to have beliefs and attitudes similar to those in the middle-class community. Intermediate teachers in the two districts seemed to begin the year with significantly different attitudes.

TABLE 14

Comparison of Teachers by Grade Level on Fall TAI

Scales		Intermediate			Primary (K-3)		
		District 1 N = 17	District 2 N = 24	t value (one-tailed)	District 1 N = 12	District 2 N = 27	t value (one-tailed)
R + C	$\bar{X}$	43.12	50.79	3.85**	49.33	49.33	n.s.
	S^2	44.89	32.26		34.46	33.64	n.s.
P + I	$\bar{X}$	46.82	50.62	2.32*	48.25	48.37	n.s.
	S^2	25.00	29.38		24.80	38.44	n.s.
Total	$\bar{X}$	89.94	101.42	3.44**	97.58	97.70	n.s.
	S^2	113.85	106.09		107.12	112.57	n.s.

*p < .05
**p < .01

It should be recognized that about one-third (5 out of 17) teachers in the District One sample (used in Table 6) were black. All of the teachers in the District Two sample were white. A question for future research might be whether minority teachers have significantly different attitudes as measured on the TAI. In this study, there is no evidence that such a difference might exist, but the hypothesis should be tested.

Table 15 provides an answer to the question regarding School 5. The reader will recall that School 5 was described as the school most closely exemplifying Style Two teaching. The teachers had been selected for the school because of their desire and ability to work effectively in teams for teaching in round, open-space buildings. Teachers in that school reflected a relaxed, flexible manner that encouraged pupil participation in decision making and allowed much experimentation with methods of "reaching the kids." If informal observations were accurate, teachers in this school should have reported significantly higher scores on the TAI.

School 2, in District One, was selected for comparison with School 5, in District Two. By contrast to School 5, School 2 was housed in a traditional California school building, and teaching styles were closest to exemplifying Style One. School 2 might be described as "distressed" (see Whitmore, Crist, & Marx, 1974). This adjective reflects an atmosphere of frustration, tension, and conflict for teachers and students. Control of disruptive and rebellious behavior was the foremost teacher concern, followed by a desire to "get kids to want to learn and achieve." The two schools, 2 and 5, were considered to be as dichotomous as Styles One and Two.

The means reported in Table 15 represent teachers of all grades in the different faculties. The t tests in Table 16 show that differences between Schools 2 and 5 are significant. Examination of the means of all schools included in the study suggests that School 5 is markedly different from all the others. It should be remembered that the group means for schools obscure the significant differences between primary and intermediate teachers, as previously discussed.

TABLE 15

Means and Variance on Fall TAI Subscales, by School

Scale		1 (N=17)	2 (N=18)	3 (N=13)	4 (N=16)	5 (N=22)
Rigidity	$\bar{X}$	23.00	24.78	25.15	24.94	26.86
	S^2	16.25	12.89	6.81	9.40	4.50
Controlling	$\bar{X}$	20.12	22.56	23.23	23.94	24.96
	S^2	11.99	9.91	7.36	9.80	19.57
Professionalism	$\bar{X}$	24.59	25.33	23.92	23.44	27.27
	S^2	4.88	7.06	6.58	7.60	5.64
Individualism	$\bar{X}$	22.24	23.28	22.77	23.38	25.68
	S^2	13.69	12.33	9.69	9.05	13.75
Total Score	$\bar{X}$	89.94	95.94	95.08	95.69	104.77
	S^2	113.94	95.59	60.75	90.63	112.10

TABLE 16

Tests of Significance (One-Tailed) Between TAI Means for Schools 2 and 5 (Fall Data: df = 38)

Scale	t Value	Level of Significance
Rigidity	2.17	.05
Controlling	2.00	.05
Professionalism	2.40	.05
Individualism	2.11	.05
Total Score	2.73	.01

From these preliminary findings, one may tentatively conclude that the TAI is able to discriminate between groups of teachers differing in teaching styles and opinions regarding optimal teaching practices. The results were encouraging, and it is hoped that they will stimulate further testing of the instrument.

Limitations of the Field Test

Missing data limited this study rather seriously. From two to five percent of the data from each teacher group was missing due to omitted responses and unclear markings. Forty-two subjects, mostly in District Two, were eliminated from analyses because of missing data, fall or spring. The total loss of spring data from the third school in the middle-class community was an unfortunate occurrence, since that school most closely exemplified the type of learning climate created by Style Two teachers. This observation was substantiated by the significantly high fall group mean of 105. Only 6 of the 24 teachers in School 5 had a Total score of less than 100.

Another limitation was the restriction on the amount of data that could be gathered for this segment of the larger research project. Observations of teacher behavior in District Two were not possible. The most comprehensive data were obtained for eight intermediate teachers in District One--a sample so small that the valuable information obtained could not be used well. Specifically, the data obtained were measures of student perceptions of teachers, pupil freedom to self-direct, and classroom climate. The group of eight teachers did not include distinctive representatives of both teaching styles, so the information could not be used in validating the instrument.

It was expected that the fears of administrative evaluation in the low-SES black schools would bias the responses of the teachers on the TAI. It is not clear to what extent this influence may have occurred. Generally, the participants' responses seemed to the experimenter to be candid even though names were attached to the forms. In School 5 of District Two, an unexpected fear was expressed by a few teachers that they would never know who "might get their hands on the completed questionnaires." The examiner suggested numerical codes for identification, and the resulting anonymity seemed to release teachers to respond freely to the items.

Certainly cross-validation of results is needed based upon a wide variety of situations and much larger samples. As was mentioned earlier, testing about two months apart in winter seems advisable to obtain stability coefficients. It would also be desirable to involve teachers from more minority groups and different parts of the country.

Potential Uses of the TAI

In Research

The TAI may be helpful in defining problem situations within districts or schools by providing profiles of teacher opinions regarding basic issues. It may also be valuable as a measure of the effectiveness of in-service education programs, indicating the degree of attitude change over time.

By Districts

Administrative leaders or in-service personnel may use information provided by TAI scores to assess the position of individuals or groups of teachers in relation to the two styles of teaching and the attitude toward programs of in-service education. Mean scores for large groups obtained at different times might be valuable measures of trends or changes.

By Principals

TAI scores might assist principals in matching teacher assignments to compatible styles; e.g., team teaching in an open classroom setting requires a high degree of flexibility and ability to individualize. The principal might also use the questionnaire to stimulate faculty discussions on selected items and to guide him in counseling individuals who are directed toward professional growth. The TAI should be only one source of information about the teacher.

By Teachers

Teachers may wish to use the TAI to examine their own beliefs and positions on issues--especially to gain insight regarding the discrepancies between beliefs and actions that may be sources of frustration, a sense of failure, or job dissatisfaction. This use of the TAI could be accomplished in small discussion groups or in private counseling.

Cautions

The potential uses of the instrument mentioned above are intended to stimulate interest in the inventory and to guide the researchers who may further its development. At this stage, there is not enough evidence of the reliability and validity of the instrument for its use to be extended beyond that of qualified researchers desiring to obtain more data. Others interested in field testing the instrument and putting their results to practical use in schools may contact the author for permission.[2]

Conclusions

The concluding statements that can be made based upon this preliminary study are as follows:

--The instrument appears worthy of further testing and development.

--There is moderate evidence that the TAI is capable of being substantially reliable and valid.

--Cross-validation in a wide variety of situations with large numbers of teachers is desirable, along with observations of classroom behavior for validity data.

--Norms and standard errors of measurement need to be obtained based on large, heterogeneous samples.

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[2]Dr. J. R. Whitmore, Department of Psychology, Box 512, Peabody College for Teachers, Nashville, Tennessee 37203.

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Appendix I

TEACHER ATTITUDE INVENTORY, 1974
(Revised Form)

Name_____

Grade teaching_____

School_____

Date_____

Instructions

The following pairs of statements have been chosen to illustrate some real questions about the teaching role. The purpose of the inventory is to obtain a clearer picture of the attitudes and feelings teachers have regarding these controversial issues. Individual responses to the questionnaire will not be disclosed, but group results will be made available to you.

Please consider the two statements given beside each number. Ask yourself, "Where do I generally stand regarding these contrasting positions in relationship to teaching my grade level?" Then, mark one "X" on the continuum indicating how you most often would respond, though exceptions often occur.

A mark in Column "1" represents strong agreement with the first statement.

A mark in Column "2" indicates mild agreement with the first statement.

A mark in the center column will indicate no preference, or that both statements seem equally valid to you.

A mark in Columns "4" or "5" shows mild or strong agreement with the second statement.

TEACHER ATTITUDE INVENTORY

	1	2	3	4	5	
1. Schools are too structured these days.	___	___	___	___	___	A major problem in today's schools is a lack of well-defined structure.
2. Most of my energy at this grade level is spent trying to retain some control and maintain order.	___	___	___	___	___	Most of my energy is spent trying to find ways to make the curriculum meaningful to individual students.
3. Teachers need many opportunities to increase their skills and knowledge of new techniques by participating in inservice workshops.	___	___	___	___	___	Inservice workshops are not necessary; teaching experience and extension classes help the teachers more.
4. The teacher's prime responsibility to the child is to teach him how to fit into his society and meet its expectations.	___	___	___	___	___	The teacher's prime responsibility is to help release the child to feel free to develop himself toward an increasing sense of self-fulfillment as an individual, relatively independent of society's expectations.
5. Teachers should not become too personally and emotionally involved with individuals in the class.	___	___	___	___	___	A teacher must be a special close friend before he can help the student realize his fullest potential.
6. Teachers should be acknowledged for being innovative and opportunity provided for them to share their ideas with other teachers.	___	___	___	___	___	No special recognition should be given teachers for being "innovative" as it fosters a competitive spirit and exaggerates the value of innovation.

	1	2	3	4	5	
7. Some children cannot be motivated because of other environmental influences.	____	____	____	____	____	There is no child who cannot be motivated to learn.
8. The teaching style (methodology) and curriculum should be consistent with a school and relatively consistent within a district or a nation.	____	____	____	____	____	Every teacher should be free to modify the curriculum or implement any method that helps her accomplish district or nationally defined objectives for the grade.
9. Some form of individualized instruction is generally more effective than group instruction for my grade level.	____	____	____	____	____	Group instruction is still the most practical and effective method of teaching for my grade level.
10. Faculty meetings should expose teachers to new ideas, material and approaches; memos can communicate technical-clerical information.	____	____	____	____	____	Faculty meetings should be very brief and confined to essential "business."
11. Children cannot learn well in a noisy room full of movement.	____	____	____	____	____	Children should be allowed to talk and to leave their seats or the room freely any time to accomplish work.
12. A teacher should be free to test any idea of a new technique in teaching.	____	____	____	____	____	Experimentation should occur only under the close supervision of administrative staff.

	1	2	3	4	5	
13. A teacher can significantly influence the attitudes and values of children even from a "culturally deprived" home and social environment.	____	____	____	____	____	A teacher can do very little to motivate children from a "culturally deprived" home and social environment.
14. Most children in the grade that I teach are capable of increasing responsibility for self-evaluation and self-discipline as individuals and as a group.	____	____	____	____	____	Pupils cannot be expected to assume responsibility for self-discipline and evaluation before the secondary level; until then the teacher must assume most responsibility for discipline and evaluation.
15. There is too much experimentation in our schools and too little respect for traditional approaches.	____	____	____	____	____	Teachers must be willing to experiment with new approaches because our schools are in need of many changes before they will successfully do their job.
16. Individual pupil conferences with all students are very seldom possible in classes of 25 or more.	____	____	____	____	____	A teacher can and should make time for frequent conferences with individual pupils on personal and academic matters.
17. Teaching staffs should be more involved in the development and evaluation of their programs.	____	____	____	____	____	Development and evaluation of programs can best be carried out by administrative staffs.
18. Group discussions in class are usually a waste of time.	____	____	____	____	____	Group dialogue and exploration of ideas are useful educational techniques.

	1	2	3	4	5	
19. A teacher should employ any approach or technique that will contribute toward the development of the potential for uniqueness, creativity, and individuality in each child.	____	____	____	____	____	The teacher is most effective when he or she confines her or his methods to standard ones such as those suggested in curriculum guides which are designed to be suitable to most children.
20. Teachers are not intended to be psychologists and therefore should confine their efforts to teaching subject matter and academic skills.	____	____	____	____	____	Teachers must apply the principles and theories of social psychology and child development to most effectively provide for learning and socio-emotional needs of each child.
21. Students should be encouraged to become increasingly involved in planning and evaluating.	____	____	____	____	____	Students may be involved only to a very limited extent regarding planning and evaluating; the final decisions must be those of the teacher.
22. Too much flexibility and pupil planning in a classroom creates feelings of insecurity and confusion.	____	____	____	____	____	Flexibility and spontaneity in a classroom are vital because such conditions foster creativity and enthusiasm.
23. It is most effective for a teacher to gain the respect of his pupils as a close personal friend.	____	____	____	____	____	It is important for a teacher to demand the respect of his pupils by maintaining a proper amount of distance.
24. Teachers should help each other evaluate approaches, identify problems or weaknesses and design methods of correcting the problems.	____	____	____	____	____	Evaluation should be a personal matter, involving only the teacher and principal.

TAI SCORING SHEET

Teacher: _____ School: _____

Date of Administration: _____ Grade Teaching: _____

ITEM	SCORE	Rigidity	Controlling	Professional	Individualism
1 R		*			
2			*		
3 R				*	
4			*		
5					*
6 R				*	
7					*
8		*			
9 R					*
10 R				*	
11			*		
12 R				*	
13 R		*			
14 R			*		
15		*			
16					*
17 R				*	
18			*		
19 R		*			
20					*
21 R			*		
22		*			
23 R					*
24 R				*	
TOTAL					
No. Items	24	6	6	6	6
Average					

Appendix II

ITEMS EXCLUDED FROM TAI
(See text pp. 13-14.)

1. Teaching is most rewarding because of the variety of individuals I enjoy working with as students.	Teaching is most rewarding when my class accomplishes great gains in subject areas.
6. Pupils have it too easy in the modern school.	Some pupil freedom makes the school day more productive.
10. For effective learning to occur, the teacher must first establish firm group control which later may be relaxed somewhat.	For effective learning to occur, the teacher must first find ways of motivating individuals in her class.
14. A teacher should accept as a fact that some learning difficulties cannot be completely corrected.	All learning difficulties can be helped significantly with the appropriate approaches.
17. The first concern of a teacher should be to gain knowledge of each individual child as a person.	The first concern of a teacher should be to establish and maintain an efficient organization of time and control of pupil behavior.
18. Teachers should not be required to take classes or to attend workshops; there is enough to do teaching a class.	School districts should require regular professional increments through classes or workshops of a high quality provided by the district.
19. A great amount of flexibility is necessary to motivate children and teach effectively.	A great amount of regularity and consistency from day to day is essential to effective teaching.
20. Children are usually more productive and happier workers when the teacher exercises strict control.	Children are usually more productive and happier workers when they are exercising control over themselves individually and as a group.
21. In helping an under- or non-achiever, the teacher must first come to understand the individual's self-concept and to work towards its positive development.	In helping an under- or non-achiever, the teacher must carefully plan an approach which will correct the deficiency.

22. Children at the grade level I teach need a great deal of opportunity for self-selection and self-direction in classroom work.	Children at the grade level I teach need well-defined structure and expectations which make clear what they should do during each period.
23. Assuming you have 30 or more pupils, heterogeneous grouping is definitely best for the child and probably for the teacher in the long run.	Assuming you have 30 or more pupils, some form of homogeneous grouping is definitely the only way a teacher can effectively teach.
24. Knowledge of subject matter and skills in methods of teaching it to groups are far more important to successful teaching than is an understanding of social psychology.	The ability to implement a variety of methods adapted to individual learning styles is more important than mastery of subject matter for effective teaching.
25. Children should be allowed to make many choices regarding curriculum or procedures.	Children are usually not very capable at making choices effectively as to work or procedure.
26. In-service workshops generally are a waste of time unless efficiently organized and clearly structured by strong leaders.	In-service workshops generally are a waste of time because they are not flexibly planned so that teachers largely determine the content.
32. It is best to always teach a concept by employing several different approaches rather than using just one previously successful method.	It is best to always teach a concept by using one method that has been successful and has produced results.
36. A teacher cannot be accurately evaluated even by the most competent administrators.	Teachers need competent help in evaluating how they can improve.

Appendix III

OUTLINE OF TEACHER BEHAVIOR OBSERVATION SCHEDULE

Direction

- Initiates
- Response, active
  - a. Response, on-going
  - b. Response, new
- Response, passive
  - a. Listens
  - b. Watches
- Noncommunicative

Object

- Single child
- Small group
- Whole group
- Himself

Publicity

- Very publicly
- Publicly
- Privately
  - a. Interaction, object only
  - b. Interaction, intended for object only
- Indeterminate

Behavior

- Provides information
- Approving
  - a. Simple, approving statement
  - b. Moderate, personalized reinforcement
  - c. Strong reinforcement
  - d. Noncritical approval
- Develops student idea, concept
- Recognizes abilities, interests
- Recognizes improvement
- Recognizes effort, encouragement
- Recognizes feelings
- Recognizes individual initiative
  - a. Expression of acceptance
  - b. Accepts child's suggestion, acts on it
- Questioning
  - a. Simple
  - b. Divergent
  - c. Answers own question

Behavior (continued)

- Offers choices
- Asks student to develop idea
  - a. Academic ideas
  - b. Non-academic ideas
- Suggests equality
  - a. Cognitive
  - b. Affective
- Gives directions
  - a. Explicit
  - b. Cue
  - c. Pupil recall
- Controls (toward behavior)
  - a. Minimal cues
  - b. Moderate
  - c. Strong, but indirect control
- Controls, harsh (toward behavior)
- Controls, corporal (toward behavior)
- Short criticism (toward performance)
  - a. Academic
  - b. Simple disapproval, non-academic
- Criticism with explanation
- Harsh criticism
- Evaluating
- Transition behavior
- Indeterminate

Content

- Subject matter
- Performance goals
- Routine procedures
- Behavior, negative
- Behavior, positive
- Personal qualities
- Human relations
- Indeterminate

Attention

- Undivided
- Divided

Note: The Teacher Behavior Observation Schedule was developed at SCRDT as part of the project in which the TAI was used. A report on the instrument will appear in Sears, Crist, & Marx (forthcoming). What is presented here is merely a list of the TBOS categories.

Appendix IV

MEANS AND STANDARD DEVIATIONS FOR TEACHERS GROUPED BY SCHOOL AND GRADE LEVEL

School and Grade Level	N	Rigidity X	Rigidity SD	Controlling X	Controlling SD	Prof. X	Prof. SD	Indiv. X	Indiv. SD	R + C X	R + C SD	P + I X	P + I SD	Total X	Total SD
1 Int.	17	23.00	4.03	20.12	3.46	24.59	2.21	22.24	3.70	43.12	6.70	46.82	5.00	89.94	10.67
	15	24.73	3.22	24.00	4.34	26.13	2.95	24.80	3.86	48.73	6.52	50.93	6.12	99.67	12.01
2 Pri.	12	26.00	3.49	23.33	3.11	24.67	2.93	23.58	2.91	49.33	5.87	48.25	4.98	97.58	10.35
	14	24.86	3.55	23.00	3.88	24.79	3.94	22.71	3.62	47.86	6.22	47.50	6.15	95.36	10.90
2 Int.	6	22.33	2.50	21.00	2.83	26.67	1.37	22.67	4.76	43.33	4.27	49.33	4.97	92.67	8.36
	5	22.40	3.36	22.40	2.19	24.60	2.61	20.40	1.67	44.80	4.02	45.00	3.74	89.80	7.40
3, 4, 5 Pri.	27	25.82	2.50	23.52	3.83	24.48	3.20	23.89	3.79	49.33	5.80	48.37	6.20	97.70	10.61
	19	25.10	2.75	24.84	3.10	23.32	3.93	24.32	3.51	49.95	5.29	49.63	6.74	97.58	11.01
3, 4, 5 Int.	24	25.83	2.93	24.96	3.39	26.04	2.79	24.58	3.28	50.70	5.68	50.62	5.42	101.42	10.30
	17	25.00	2.98	23.71	4.57	25.24	2.59	22.94	3.49	48.71	6.77	48.18	4.30	96.88	9.88
Administrators	7	25.86	1.46	26.29	2.81	25.71	6.26	24.29	3.04	52.14	3.85	50.00	8.29	102.14	11.51
	4	27.00	2.58	22.00	6.68	28.25	1.26	27.25	2.75	49.00	9.13	55.50	3.42	104.50	8.81